

# ULTRA VIOLET DEVICE ERASERS

ULTRALITE-MAX, ULTRALITE, QUV-  
T8/N, QUV-T8T, QUV-T8Z and T81

User Manual

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## Release Information

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## **1.0 DESCRIPTION**

Logical Devices' family of UV Eraser's can be used to erase all UV erasable devices. The exposure time is calculated to prevent device damage from short duration, high intensity exposure and still provide fast erase time. The erase time may vary slightly depending upon the type of quartz windows used by the device manufacturer. Each eraser, except for the QUV-T8/1 economy model, has a slide out tray.

### **1.1 ULTRALITE-MAX**

ULTRALITE-MAX is a high capacity unit for a production environment. This unit is uniquely designed to accommodate entire PC boards, which eliminates the need to remove the EPROMs from the board. ULTRALITE-MAX is guaranteed to withstand heavy duty operation in a commercial environment.

### **1.2 ULTRALITE**

ULTRALITE is a high-performance UV eraser for either production or engineering applications. The large 50 EPROM tray can also accommodate whole PC boards up to 6"x9"x3/4", which eliminates the need to remove EPROMs from the board. This eraser has a double element system with individual bulb intensities of 12000 uW/cm<sup>2</sup> at 1" from the centerline. It also contains a UV indicator, a 60-minute, variable, auto-shutoff timer, and a safety interlock switch.

### **1.3 QUV-T8/Z Industrial Deluxe Model**

The QUV-T8/Z is a deluxe, time-saving industrial model UV eraser capable of erasing 30 EPROMs in 10 minutes. This eraser has a parabolic chrome reflector with tray wide demensions, a lamp intensity of 12000 uW/cm<sup>2</sup> at 1" from centerline, and a lamp life of approximately 7700 hours. Additionally, the QUV-T8/Z has a 30 EPROM tray with anti-static pad; a UV indicator; a 60-minute, variable, auto-shut-off timer; and a safety interlock switch.

### **1.4 QUV-T8/T and QUV-T8/N Industrial Models**

These are standard industrial model UV eraser. They effectively erase 15 EPROMs in approximately 20-30 minutes. Both models have a lamp intensity of 12000 uW/cm<sup>2</sup> at 1" from centerline with a lamp life of approximately 7700 hours, a 15 EPROM tray with anti-static pads; a UV indicator; and a safety interlock switch. The QUV-T8/T has a 60-minute variable, auto-shutoff timer; the QUV-T8/N does not.

### **1.5 QUV-T8/1 Economy Model**

The QUV-T8/1 is designed for light or hobby applications. It is a low-cost unit housed in a two piece plastic case. The UV element and other components are housed in the top half of the case while the EPROMs are placed in the bottom half. The QUV T8/1 has an intensity of 12000 uW/cm<sup>2</sup> at 1" from centerline and erases as many as eight EPROMs in 15-20 minutes.



## 1.6 Specifications

Table 1-1 provides complete specifications for all erasers covered by this manual.

MODEL	SPECIFICATIONS
ULTRALITE-MAX	Power requirements: 110 VAC, 60Hz Tray size: 13" x 8" x 2" Effective erase area: 11 1/2" x 11 1/2" x 2" EPROM capacity: 96 Intensity: 12000 uW/cm <sup>2</sup> at 1" from centerline Lamp life: approximately 7700 hours
ULTRALITE	Power requirements: 110-120 VAC, 60 Hz Tray size: 10"x8"x1" Effective erase area: 9" x 5" EPROM capacity: 50 Intensity: 12000 uW/cm <sup>2</sup> at 1" from centerline Lamp life: approximately 7700 hours
QUV-T8/Z	Power requirements: 110-120 VAC, 60 Hz Tray size: 9"x5"x1" Effective erase area: 8" x 4" EPROM capacity: 30 Intensity: 12000 uW/cm <sup>2</sup> at 1" from centerline Lamp life: approximately 7700 hours
QUV-T8/T QUV-T8/N	Power requirements: 110-120 VAC, 60 Hz Tray size: 9"x5"x1" Effective erase area: 8" x 4" EPROM capacity: 15 Intensity: 12000 uW/cm <sup>2</sup> at 1" from centerline Lamp life: approximately 7700 hours
QUV-T8/I	Power requirements: 110-120 VAC, 60 Hz Tray size: 12"x4"x1" Effective erase area: 8" x 4" EPROM capacity: 8 Intensity: 12000 uW/cm <sup>2</sup> at 1" from centerline Lamp life: approximately 7700 hours
NOTES: All models are available for 220 VAC, 50 Hz All models have a UV wavelength of 2537 angstroms	

## 1.7 Safety Precautions

1. Do not expose eyes or skin to the ultraviolet rays produced by this product. Direct exposure to the eye can cause blindness.
2. Do not apply AC power to any eraser when the tray (or lid) is removed.
3. Do not place fingers, hands, or any other foreign objects inside this unit when power is applied.



## 2.0 OPERATING INSTRUCTIONS

### NOTE

If you are using a QUV-T8/1 economy eraser, any reference to the slide out tray in the following procedures should be interpreted to mean the lower half of the case where the EPROMs are placed.

1. Place the eraser on the flat surface and slide out the tray until the full antistatic pad is accessible. With the QUV-T8/1, open the lid to access the pad on the bottom tray.
2. Check the clear window in the center of each EPROM to be erased for cleanliness. If windows are dirty or smudged, clean with a soft cloth.
3. Place EPROMs, window side up, centered along the long axis of the pad.

### NOTE

Never place more EPROMs on the pad than the eraser and pad were designed to hold.

4. Slide the tray completely closed. For the QUV-T8/1, place the top half back on the bottom tray.
5. Plug the AC power cord into the appropriate power source.
6. Refer to Table 2-1 for the recommended exposure times with regard to the eraser model and the number of EPROMs being erased. If your unit is equipped with a timer, set the timer for the recommended exposure. If your unit does not have a timer, use a reliable method for timing the exposure.

### NOTE

The built-in UV indicator lights blue when the eraser lamp is operating.

Table 2-1. Recommended UV Exposure Times

MODEL	NUMBER & TYPE OF EPROMs		RECOMMENDED EXPOSURE TIME
	32 PIN PLCC	28-PIN DIP	
ULTRALITE-MAX	270	96	30 minutes
ULTRALITE	96	40	20 minutes
QUV-T8/Z	66	25	10 minutes
QUV-T8/T	66	25	15 minutes
QUV-T8/N	66	25	30 minutes
QUV-T8/1	25	8	20 minutes
<b>NOTES:</b> The above times are recommended erase times. The actual/advertised erase time can be as short as 10-15 minutes for most major EPROM manufacturers. Certain new EPROM manufacturers have reduced the quality of the quartz window for cost saving reasons. This may require as much as a two time increase in the recommended erase time.			
Shortening the recommended erase time can result in incomplete erasing that may not be apparent until after the EPROM is being reprogrammed.			



### 3.0 TROUBLESHOOTING GUIDE

Table 3-1. Troubleshooting Guide for All Logical Devices Erasers

SYMPTOM	SUSPECT	POSSIBLE SOLUTION
UV Lamp does not light	Lamp loose in socket or bad	Tighten or replace lamp as necessary
	Starter bad	Replace starter
	Interlock switch mis-adjusted	Adjust switch acuator
	Timer bad	Replace timer
	Open circuit somewhere in lamp circuitry	Find and repair open circuit
UV lamp stays on too long	Timer problem	Replace timer
EPROMs not completely erased	Contributing factors include: * Age of the device * Number of times the device has been erased and reprogrammed * Age of the UV lamp being used * Bad UV lamp starter * Quartz window on the device is dirty or obstructed * Device placed outside the effective erase range of the unit	

### 4.0 PARTS REPLACEMENT

ERASER MODEL	STARTER	UV BULBS	TIMER	TRAYS
QUV-T8N	All 110 volt units use LDI	MISERA-R6B	N/A	MISERA-TRA
QUV-T8/T OR QUV-T8/Z	Part #76-40110-5	MISERA-R6B	MISERA-TIM	MISERA-TRA
QUV-T8/1	All 220 volt units use LDI Part #76-40220-5	MISERA-R6B	N/A	N/A
ULTRALITE		MISERA-R8B (2 required)	MISERA-TIM	MISLUV-TRA
ULTRALITE-MAX		MISERA-R8B (4 required)	MISERA-TIM	MISMAX-TRA



## 5.0 ERASURE CHARACTERISTICS OF EPROMS

The erasure characteristics of EPROMs are such that erasure begins to occur upon exposure to light with wavelengths shorter than approximately 4000 angstroms. It should be noted that sunlight and certain types of florescent lamps have wavelengths in the 3000 to 4000 angstrom range. Data shows that constant exposure to room level florescent lighting could erase a typical EPROM in approximately 3 years, while it would take approximately 1 week to cause erasure when exposed to direct sunlight. The recommended erasure procedure for the typical EPROM is exposure to shortwave ultraviolet light which has a wavelength of 2537 angstroms. The integrated dose (i.e., UV intensity x exposure time) for erasure should be a minimum of 15 Wsec/cm<sup>2</sup>. The lamp with a 12000 uW/cm<sup>2</sup> power rating. The EPROM should be placed within 1 inch of the lamp tubes during erasure. The maximum integrated dose a typical EPROM can be exposed to without damage is 7258 Wsec/cm<sup>2</sup> (1 week at 12000 uW/cm<sup>2</sup>). Exposure of the EPROM to high intensity UV light for long periods may cause damage.



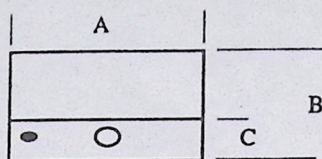
## Options, Accessories and Spare parts

Maximum allowable pcb size

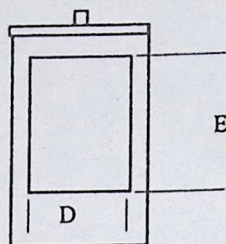
A = pcb width

B = pcb length

C = component height



Eraser foam size



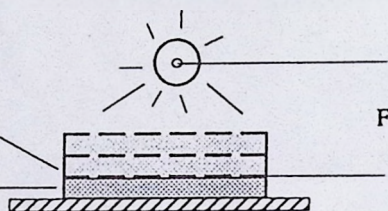
DIMENSION CHART

MODEL	A	B	C	D	E	F
T8/N/T/Z	4 1/2"	9"	3/4"	4"	8"	1"
Ultralite	6"	9"	3/4"	5"	9"	1"
UL-MAX	11 1/2"	11 1/2"	2"	9"	13"	2 1/4"

Typical Design

Optional  
Foam Pads

Built-in  
Foam Pad



# Pads	Erase time	Capacity
1	15 Minutes	15 EPROMs
3	12 Minutes	10 EPROMs
5	9 Minutes	8 EPROMs

### Static Electricity Damage (ESD)

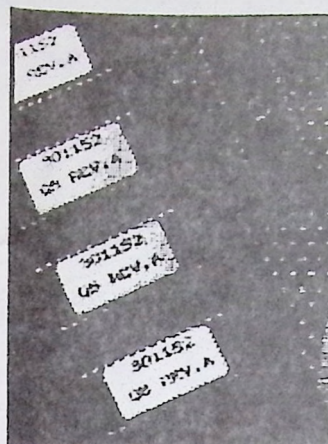
MOS devices particularly EPROMs and EPLDs are extremely sensitive to ESD. Even in the most humid environments such as South Florida ESD claims the life of several thousand dollars worth of devices at LDI annually. You must use conductive foam to transport your devices at all times. An ESD damaged part may also damage your programmer and the damaged programmer can further destroy hundreds of additional parts before an untrained person discovers the problem. Use an antistatic wrist band while gang programming your EPROMS. Safe programming practices means less loss of time and money for you and less support work for LDI.

Conductive Foam pads Pack of 25	4" x 8" x 1/4"	MISCFP-025
Anti-static Wrist Band	10' coiled lead	OPTESD-GWS
Antistatic PCB Bags	4" x 12"	OPTESD-BAG

### CUSTOM UV Erasers:

Logical Devices will manufacture custom UV erasers to any size, shape or specifications the customer requires. UV erasers with capacity of up to 1000 EPROMs can be made available. In addition for faster erasing UV Burst-Eraser is imported by Logical Devices from a European manufacturer. While In Socket Erasing (WISE) is a unique patented concept developed by Logical Devices in which devices are electronically checked for erasure status while under UV exposure.

For more information regarding such products please call UV Products, product manager, 1(305) 974 0967.



Spare Parts/Options	
PN	Description
MISERA-TIM	Automatic Timer
MISERA-R6B	UV element for T8/N/T/Z
MISERA-R8B	UV element for UL/UL-MAX
MISERA-TRA	Tray T8/N/T/Z
MISLUV-TRA	Tray UL
MISMAX-TRA	Tray UL-Max
MISCFP-025	Static foam pads Pack of 25
PROPP4-512	EPROM Programmer

### Static Awareness EPROM / Labeling

As good programming practice Logical recommends the use of self adhesive labels on all EPROMs for identifying any of the following : Device Checksum, File Name, Device type, Programming Voltage, or for the general device conditions such as damaged, erased, programmed etc. This practice can save you hours of guess work and possibly avoid damage to programming equipment or the device. EPROM labels listed below are made of removable vinyl cloth pre-printed in two colors yellow and white with MIL-129J static warning. Use quick dot stickers to identify erased or damaged status. Remember a shorted EPROM can destroy many EPROM programmers.

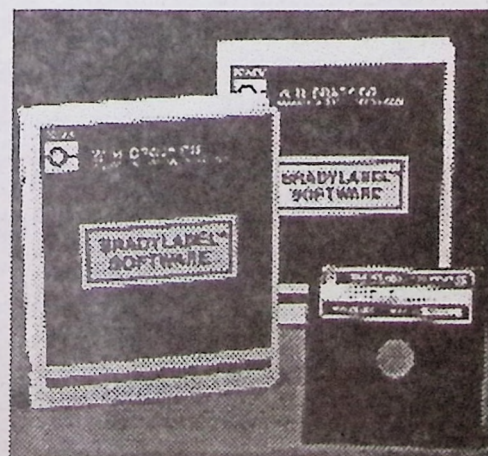
Part number	1	10	25
PAL Labels (200 x 600 mil)			
DAT-15-502-1 (1000)	\$ 19.95	\$ 17.95	\$ 14.95
DAT-15-502-10 (10,000)	\$149.95	\$125.95	\$ 99.95
EPROM Labels			
SLDAT-1-502-1 (1000)	\$ 49.95	\$ 42.95	\$ 34.95
SLDAT-1-502-10(10,000)	\$249.95	\$225.95	\$1995.00
Status Dot Labels			
QD-25-R Quick Dot Red (25 cards)	\$195.99	\$175.99	\$ 149.95
QD-25-W Quick Dot White(25 cards)	\$195.99	\$175.99	\$ 149.95

### EPROM Labeling Software

BradyLabel software gives the user the capability of creating serialized or random label files. The software gives user complete control over the label making process. The software supports many popular dot matrix printers and gives the user the ability to program additional printers.

System Requirements:

Computer: IBM PC, AT, XT or 100% compatibles. Operating: DOS 3.0 or later  
Memory: 512K Monitor: Color or Mono.  
Order Number: BLP-1 Price: \$595.00



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## *UV Eraser FAQ's*

- 1) NOT BLANK!, I just erased the chips! / How long should I erase them?
- 2) The timer on my eraser doesn't work
- 3) I don't have a timer on my eraser
- 4) What about bulb degradation?
- 5) The bulb does not appear to come on

1) NOT BLANK!, I just erased the chips! / How long should I erase them?

Erasing a programmable device is not always a straight forward process and times may vary slightly, to greatly. There are a lot of factors involved in erasing a device. Some things to consider...

- a) The age of the device: The older the part and the more times it has been programmed / erased is a factor. The DIE in the chip will, over time, become harder to "clean up".
- b) The quality of the device window: Face it, not everybody uses the best quality, no blame just a fact. Chips that have a high quality quartz window, will allow more UV light to affect the DIE of the part.
- c) Shadowing: Many people place a sticker over the window of the chip for labeling or to protect the chip from stray light. When you peel the label off the part, a little sticky glue is left behind. It may look clear to you, but it very easily could cause a shadow to be cast over the DIE of the chip, effectively blocking the UV light. Also a large amount of, or ill placed, chips could cause the effectiveness of the UV light to be diminished by creating shadows, or by being at the limit of the lights range inside the eraser.
- d) Device Size: And they said it doesn't matter! Not true, Bigger device, bigger DIE. Longer time to erase. And more surface area with the possibility of shadowing.
- e) The Bulb: See Bulb degradation.

2) The timer on my eraser doesn't work.

The timers on our erasers will not engage until they are passed the 10 minute mark on the silkscreen diagram. make sure you have positioned the timer passed that point. You may need to give the knob a little counter clockwise twist to get it going. Otherwise you may need to contact us for a replacement.

3) I don't have a timer on my eraser.

Some of our erasers come with timers and some do not. The ones that do not have a timer will engage when you push the tray completely into the eraser. Use your own judgment as to how long to erase a chip, you can base that judgment on the above mentioned erase time considerations.

4) What about bulb degradation?

Basically everything degrades over a period of time. The light emitted from our UV bulbs is no different than say a florescent light in your kitchen, over time it can diminish and become less effective.

5) The bulb does not appear to come on.

All of LDI's erasers have a small "window" that enables you to see a bit of the UV light. If there is no light emitting from the "window" your bulb may not be engaged. What to do... all the erasers we make, have a small lever at the back of the eraser that is engaged by pushing the tray all the way in. This lever must be pressed all the way to engage the light. On the tray is a raised piece of the tray that should push up against the lever. Make sure that the raised piece of the tray is pressing the lever in, it could have been bent slightly off the mark. With timer less erasers this is the only thing that determines whether or not the light comes on. For erasers with timers, both the tray position and the position of the timer will determine this. If you have accounted for all these factors you may have a bad bulb, you can contact us or one of our many distributors to order a replacement.

The UV bulb like any other bulb can burn out, simply remove the tray and look at the filaments, are they burned up, or not making contact on both ends? Then you need to replace the bulb.